

NASA MIRO
Center for Space Exploration & Technology Research
The University of Texas at El Paso

NASA SBIR/STTR Success Story

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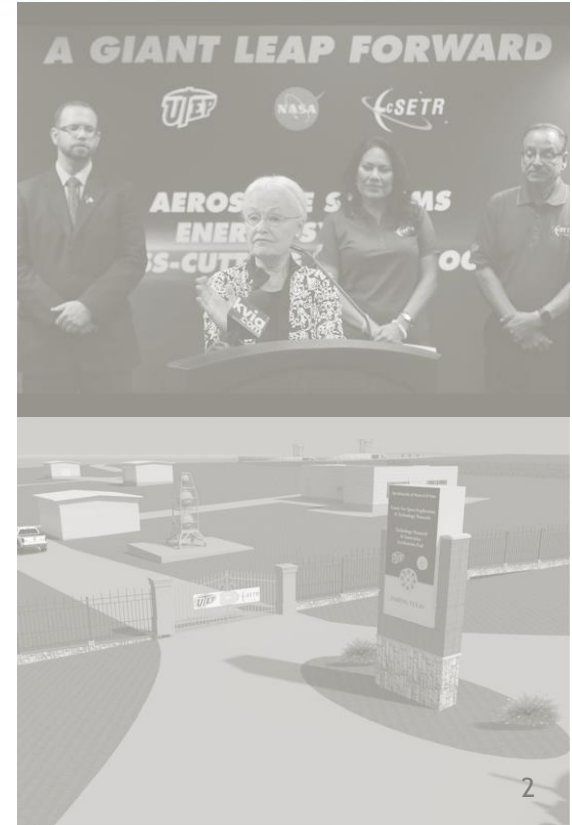


A Giant Leap Forward
research.utep.edu/cSETR



About US

- Research Institution: The University of Texas at El Paso
- Small Business Partner: LYNNTech, INC
- Innovation: Metal Production away from Earth
- Problem Addressed: In-Situ Resource Utilization (ISRU)



Innovation

- ❑ While astronomical objects are rich in the desired metallic elements, these elements are in the form inappropriate for use in Additive Manufacturing processes.
- ❑ Lynntech, in collaboration with MIRO Center for Space Exploration and Technology Research at the University of Texas El Paso, proposes to develop a process to convert material from its native state (typically an oxide dispersed in a silicate matrix) to one suitable for use in Additive Manufacturing methods to allow the direct fabrication of complex parts in space.



Experiments on combustion of lunar regolith/magnesium mixtures onboard reduced gravity aircraft.

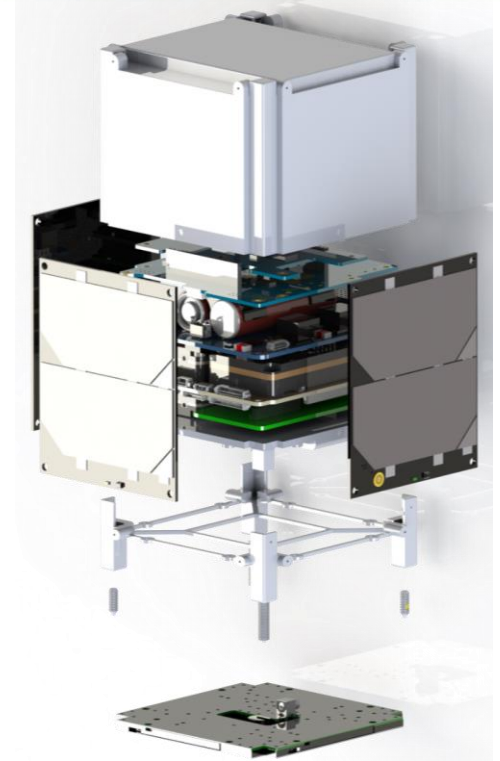
Lessons Learned

- ❑ Faculty Buy-In to pursue SBIR/STTR Efforts
 - ❑ Modest Budget for Phase I and Indirect Cost
 - ❑ UTEP MIRO cSETR is already involved in contracts and task orders
 - ❑ Administrative Structure exists
 - ❑ Research Center and Recharge Center structure allows seamless integration with the current contract portfolio
- ❑ The Small Business approached us. MIRO cSETR has a significant track record in this area.
 - ❑ Strategic Alignment & Research Capacity
- ❑ Diversification of R&D portfolio.
- ❑ Exciting opportunity for students and faculty to work on frontiers space technologies.
- ❑ Accelerate the growth of a small business partnership ecosystem



How to Succeed

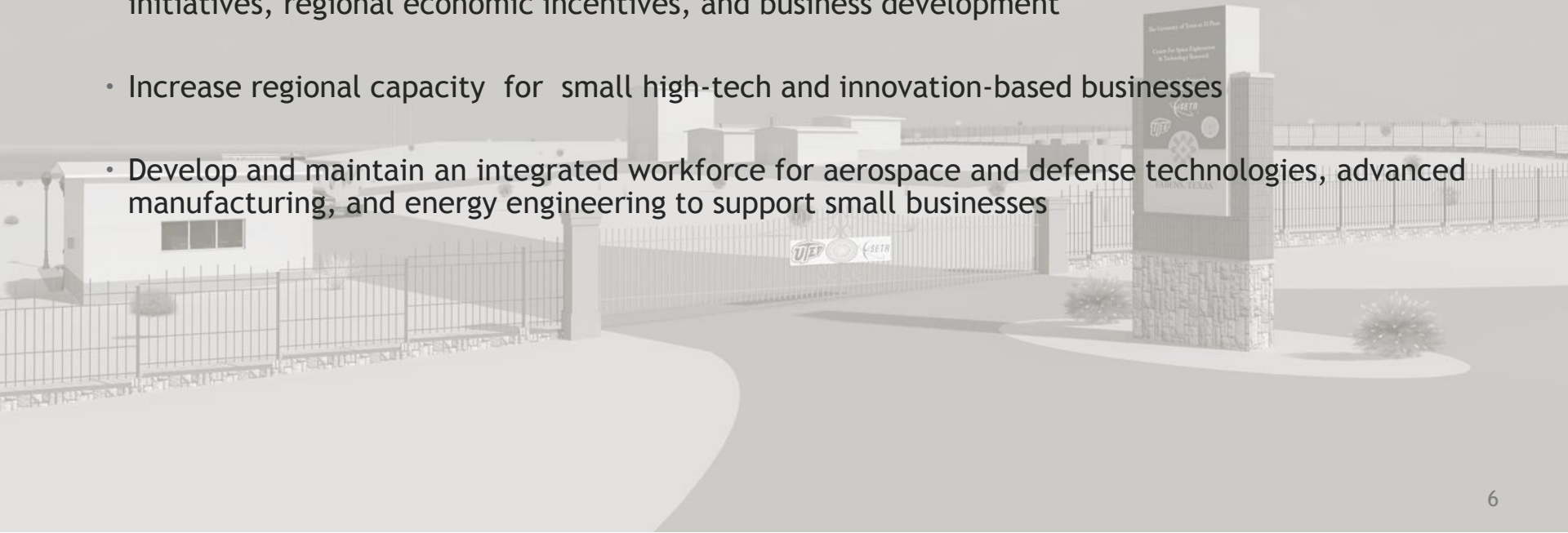
- ❑ Strategic Alliance: Strong Partnership Development
 - ❑ Complementary expertise and capacity
- ❑ Killer Idea: Precise alignment with the topical area and technical requirements
- ❑ Feedback: Communication with the agency POC during the open period
- ❑ Concrete Task Plan: Well thought out technical approach
- ❑ Robust Project Management Plan



Innovation Based Small Business EcoSystem

i6 Challenge Grant Award from the Economic Development Administration

- MIRO cSETR and the County of El Paso
 - Connect R&D infrastructure, technology development and commercialization, entrepreneurship initiatives, regional economic incentives, and business development
 - Increase regional capacity for small high-tech and innovation-based businesses
 - Develop and maintain an integrated workforce for aerospace and defense technologies, advanced manufacturing, and energy engineering to support small businesses

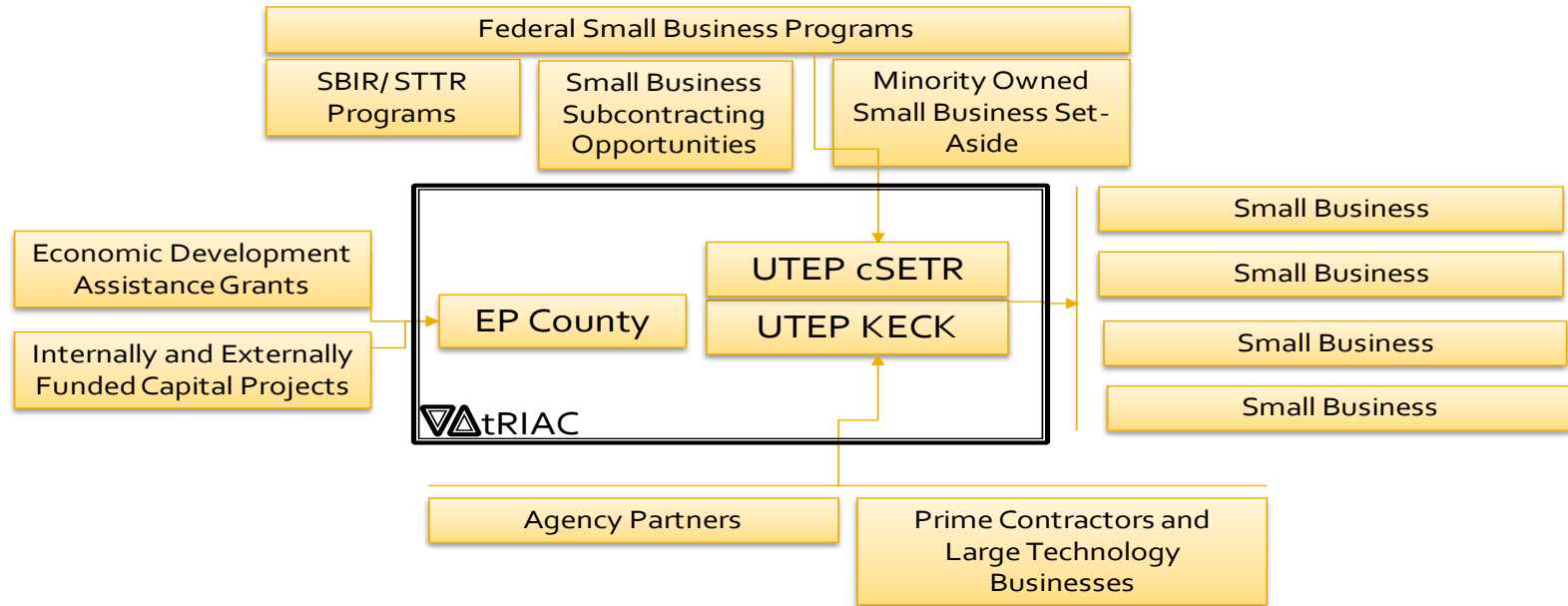


Innovation Based Small Business EcoSystem

- The innovation capacity development effort includes extensive mentoring through the UTEP cSETR and Keck Research Centers.
- Each business is paired with a technical expert and a PhD student from these centers and goes through research niche analysis and training for R&D capacity enhancement.
- These businesses have access to a network of national partners these centers currently maintain. For instance, small businesses working with the Keck Center have access to the national network for manufacturing Innovation through America Makes.



Development Strategies



2017 - 2027

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